

WHAT IS CLAIMED IS:

1. A process for producing a catalyst for olefin cracking, the process comprising the steps of providing an MFI-type crystalline silicate catalyst, heating the catalyst in steam to remove aluminum from the crystalline silicate framework and extracting aluminum from the catalyst by contacting the catalyst with a complexing agent for aluminum to remove from pores of the framework aluminum deposited therein during the steaming step thereby to increase the silicon/aluminum atomic ratio of the catalyst; and calcining the catalyst at elevated temperature.
2. A process according to claim 1, wherein the catalyst is selected from the group consisting of the ZSM-5 and silicalite types.
3. A process according to claim 2, wherein the catalyst is of the ZSM-5 type and prior to the extracting step the catalyst has a silicon/aluminum atomic ratio of less than about 80.
4. A process according to claim 2, wherein the catalyst is of the silicalite type and prior to the extracting step the catalyst has a silicon/aluminum atomic ratio of around 120.
5. A process according to claim 1, wherein the heating in steam is carried out at a temperature of from 425 to 870°C at a water partial pressure of from 13 to 200 kPa.
6. A process according to claim 5, wherein the heating in steam is carried out for a period of from 1 to 200 hours.
7. A process according to claim 1, wherein the complexing agent is selected from the group consisting of an organic acid selected from citric acid, formic acid, oxalic acid, tartaric acid, malonic acid, succinic acid, glutaric acid, adipic acid, maleic acid, phthalic acid, isophthalic acid, fumaric acid, nitrilotriacetic acid, hydroxyethylenediaminetriacetic acid, ethylenediaminetetracetic acid, trichloroacetic acid

trifluoroacetic acid, a salt thereof and a mixture of at least two of such acids or salts.

8. A process according to claim 1, wherein following the extracting step the catalyst has a silicon/aluminum atomic ratio of at least about 180.

9. A process for the catalytic cracking of olefins in a hydrocarbon feedstock which is selective towards light olefins in the effluent, the process comprising contacting a hydrocarbon feedstock containing olefins having a first composition of at least one olefinic component with a catalyst produced in accordance with the process of claim 1 to produce an effluent having a second composition of at least one olefinic component, with the feedstock and the effluent having substantially the same olefin content by weight therein.

10. A process according to claim 9, wherein the olefin contents by weight of the feedstock and of the effluent are within $\pm 15\%$ of each other.

11. A process according to claim 9 wherein the catalyst is selected from the group consisting of the ZSM-5 and silicalite types.

12. A process according to claim 9 wherein the catalyst has a silicon/aluminum atomic ratio of at least about 180.

13. A process according to claim 9 wherein the process is selective towards propylene in the effluent.

14. A process according to claim 13 wherein the catalyst has a propylene yield on an olefin basis of from 30 to 50% based on the olefin content of the feedstock.

15. Use, for cracking an olefin-rich hydrocarbon feedstock which cracking is selective towards propylene in the effluent, of an MFI-type crystalline silicate catalyst produced in accordance

with claim 1.

16. Use, according to claim 15, wherein the catalyst has a silicon/aluminum atomic ratio of at least about 180.

17. Use, according to claims 15, wherein in the cracking process the catalyst has a propylene yield on an olefin basis of from 30 to 50% based on the olefin content of the feedstock.